troller **1** also controls the connection of local controllable loads **5** which essentially means that each controllable load **5** is given a priority order to enable it to be disconnected or connected to a local group distribution network, or power island **10**, dependent upon the generator **7** having sufficient capacity to serve all such loads. The controllable loads **5** in such circumstances may be considered critical loads to varying extents which must be protected in order to ensure operability in emergency or other situations. Uncontrolled loads **6** cannot be simply switched into or out of operation dependent upon whether the generator **7** can meet any surplus power requirements over and above the controllable loads **5**.

[0013] It will be understood that in a transition from a grid connected situation to an islanded local group distribution network **10** operation state there are two potential causes. Firstly, the island is formed unintentionally due to a break in the connection between the local group distribution network **10** and the main network **11**. Alternatively, the island can be formed intentionally by disconnecting the local group distribution network **10** from the main network **11** such intentional disconnection would involve the controller **1** throwing the switch **3** to create a power island comprising source **7** and controllable loads **5**.

[0014] In the first situation, that is to say loss of connection to the overall main network **11** some form of protection of islanding must occur. Such detection may include loss of mains (LOM) protection associated with the other generator in the local group distribution network **10** or the local network itself. Detection can be by a so-called rate of change of frequency (ROCOF) relay or other suitable detection method. Immediately upon power islanding being detected it will be understood that the local group distribution network **10** and/or the local generator **7** must be disconnected from the main distribution network **11** to avoid synchronisation problems when the main network **11** becomes live again at the point of common coupling to the local group distribution network **10**. It will also be understood that such an approach addresses safety concerns on the main network **11** where it might be that electrical feedback from the local generator **7** could be presented on the main distribution network **11** when that main distribution network **11** is in a de-energised state for maintenance. The traditional approach is that the local generator **7** should be disconnected completely. Alternatively, switch **3** may be opened to form a deliberately managed power island. In the seconds that follow disconnection the local generator **7** power output may have to change rapidly to match local demand. It will be understood that typically local predefined and priority based algorithmic electrical load shedding schemes are typically activated to match local electrical power demand to the local power generating capacity, that is to say local generator **7**. The effects of such switching results in frequency fluctuations within the local group distribution network **10** (power island or local group) as loads are removed or added whilst the prime mover/local generator **7** controls are adjusted. The magnitudes of fluctuations or changes will depend upon a number of factors including the size of load steps, the response time of the prime mover for the generator **7** and the generator controls itself as well as the rotational inertia of loads, generators and prime movers in operation. In some adverse circumstances even the best control regimes may not be able to avoid a local frequency excursion of a magnitude large enough to require tripping of the local generator **7** out of operation. Such tripping of the local generator **7** or power source out of operation will cause a loss of electrical power supply until local generation can be restarted/reconnected or supplies recovered by other means, that is to say from the main network **11**. Clearly, provision of auxiliary or emergency electrical power generation requires that the local group distribution network **10** or island of power source and electrical loads is maintained as an operational entity in as many situations as possible. Ideally the highest priority loads should be supplied electrical power at all times throughout an islanding process.

[0015] The present invention provides a method of operating a distributed power generation system comprising a plurality of electrical power sources and a plurality of electrical loads interconnected by a main distribution network, one or more switches for forming one or more local group distribution networks, each local group distribution network comprising at least one electrical power source and at least one electrical load, the method comprising monitoring the main distribution network by comparing the electrical power flow with a set of criteria, determining if the electrical power flow on the main distribution network diverges from the set of criteria, maintaining the switch between at least one of the local group distribution networks and the main distribution network closed and configuring the at least one of the local group distribution networks whereby the electrical power from the or each electrical power source within the at least one of the local group distraction networks substantially matches the electrical power requirements of the electrical loads in the at least one of the local group distribution networks if the electrical power flow in the main distribution network diverges from the set of criteria.

[0016] The present invention also provides a distributed power generation system comprising a plurality of electrical power sources and a plurality of electrical loads interconnected by a main distribution network, one or more switches for forming one or more local group distribution networks, each local group distribution network comprising at least one electrical power source and at least one electrical load, the distributed power generation system comprising at least one controller arranged to monitor the main distribution network, the controller being arranged to compare the electrical power flow with set of criteria, the controller being arranged to determine of the electrical power flow on the main distribution network diverges from the set of criteria, the controller being arranged to maintain the switch between the at least one of the local group distribution networks and the main distribution network closed and the controller being arranged to configure the at least one of the local group distribution networks whereby the electrical power from the or each electrical power source with the at least one of the local group distribution networks substantially matches the electrical power requirements of the electrical loads in the at least one of the local group distribution networks if the electrical power flow in the main distribution network diverges from the criteria.

[0017] Other aspects of the present invention are defined in the description below and/or the claims.

[0018] Aspects of the present invention will now be described by way of example with reference to FIG. **1** already introduced.

[0019] It will be appreciated that with regard to a distributed power generation system anticipation of an islanding situation would be beneficial with regard to meeting the requirements of that island as a local group distribution network comprising power sources and loads if the island state